NOVEMBER/DECEMBER 2024

FACS42/CACS42 — STATISTICAL METHODS AND THEIR APPLICATIONS — II

Shanmuga Industries Arts & Science College
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Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Write down the normal equations of curve $y = a + bx$.

2. Define curve fitting.

3. Prove that $P(A) = 1 - P(\overline{A})$, where A is a subset of the sample space.

4. What is Boole's inequality?

5. Show that the characteristic function of binomial distribution is $(q + pe^{it})^n$.

6. Derive the mean of the Poisson distribution.

7. Define sample error.

8. What is t-distribution?

9. What is ANOVA test?

10. Write row totals and grand total formulas.

SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL the questions.

11. (a) Fit a straight line to the following data and estimate the value of y corresponding to $x = 6$.

X	0	5	10	15	20	25
Y	12	15	17	22	24	30

Or

(b) Fit the curve $y = bx^a$ to the following data :

X	1	2	3	4	5	6
Y	1200	900	600	200	110	50